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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	DOCKET FILE COPY ORIGINAL
	)	
Amendment of Parts 2 and 15	)	ET Docket No. 94-124
of the Commission's Rules to Permit	)	RM-8308
Use of Radio Frequencies Above 40 GHz	)	
for New Radio Applications	)	

MOTION TO ACCEPT LATE-FILED REPLY COMMENTS

VORAD Safety Systems, Inc. respectfully requests that the Federal Communication Commission accept these Reply Comments in the above referenced proposed rule making.

This late submission is due to a misinterpretation of the reply comment date specified in the NOTICE OF PROPOSED RULE MAKING released on November 8, 1994. The late submission is regretted and any consideration possible by the Commission of these Reply Comments would be appreciated.

The original plus nine copies of the Reply Comments are provided for distribution to the Commissioners, Secretary, Bureau and the Information Office.

Respectfully,

Daniel F. Malloy

Daniel F. Malloy
President
VORAD Safety Systems, Inc.
10802 Willow Court
San Diego, CA 92127

Dated: March 30, 1995

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REPLY COMMENTS OF VORAD SAFETY SYSTEMS, INC.

VORAD Safety Systems, Inc. ("VORAD") hereby submits reply comments on the above referenced Federal Communications Commission Notice of Proposed Rule Making released November 8, 1994.

1. VORAD does not concur with the comment from Epsilon Lambda Electronics Corporation with regard to discontinuing use of 24.125 GHz and 24.725 GHz for vehicle radar applications. The current Part 15 regulation neither provides for nor excludes vehicle radar use of these bands and that should remain as written in Part 15. The vehicle radar products that VORAD has manufactured, is currently manufacturing and plans to manufacture in the future fully comply with the existing Part 15 FCC regulations and has proven that such products can operate without any interference or effect on other Part 15 devices and equipment. The continued use of the existing FCC Part 15 K-band equipment offers good potential for future vehicle radar applications even with the current Part 15 low power limitation of 2.5 volts/meter measured 3 meters from the antenna and the narrow bandwidth limitation of 100 MHz. This is especially true for near obstacle detection systems such as adjacent lane vehicle detectors or back-up detection systems where wide beam and short range detection is critical. Epsilon Lambda Electronics Corporation has indicated agreement with this position in subsequent discussions with VORAD.

Recommendation: VORAD recommends that the existing FCC Part 15 rules for equipment under 40 GHz remain unchanged regarding types of applications that can operate under Part 15. Any application that fully complies with the present regulation should be allowed to continue in the future.

2. VORAD does not concur with the comment from the Telecommunications Industry Association (TIA) regarding the reallocation of the proposed FCC vehicle radar frequency band of 47.2-47.4 GHz to a band below 47.0 GHz. VORAD originally requested a frequency band in the 48 GHz area to permit the rapid introduction of low cost millimeter wave vehicle radar systems that used existing 24.125 GHz production oscillator devices with a frequency multiplier. These systems would ideally operate at 48.25 GHz. The cost for developing such systems increases as the operating frequency moves further away from the optimum of 48.25 GHz.

VORAD has initiated system development based on the FCC proposed frequency of 47.2-47.4 GHz. Additional costs would be incurred to redevelop the system and product introduction would be delayed if the FCC shifted their proposed vehicle radar band from 47.2-47.4 GHz. The reason given by TIA for their recommendation was to provide a "guard band of 500 MHz". VORAD does not fully understand the basis for this, but guard bands in general represent unallocated and unusable spectrum and 500 MHz may be excessive. The comment of TIA was also supported by Alcatel Network Systems and by Harris Corporation - Farinon Division.

Recommendation: VORAD recommends that the FCC proposed vehicle frequency band of 47.2-47.4 GHz remain as proposed.

3. Several commentors requested that the vehicle radar transmitted power limitation be increased from the FCC proposed limit of 30 microwatts/cm^2 measured at 3 meters from the antenna. These commentors requested a power limitation of 60 to 300 microwatts/cm^2 for vehicle radar equipment operating at 76.0-77.0 GHz and 94.7-95.7 GHz and a power limitation of up to 600 microwatts/cm^2 for vehicle radar equipment operating at 130.0-140.0 GHz or 152.0-154.0 GHz. VORAD has no experience with vehicle radar equipment operating above 80 GHz so no comments are offered regarding that spectrum. VORAD does have vehicle radar experience in the bands of 24.075-24.175 GHz, 24.575-24.24.675 GHz, 47.2-47.4 GHz, 59.0-60.0 GHz and 76.0-77.0 GHz. VORAD experience in these frequency bands indicates that the proposed FCC power limitation of 30 microwatts/cm^2 is adequate for vehicle radar systems with detection ranges up to 150 meters.

This position is further supported by the seven responses from Japanese organizations/ companies that agreed with the recommended FCC power limitation for vehicle radar of 30 microwatts/cm^2 even for the frequency band of 60.0-61.0 GHz which has the high attenuation of the oxygen absorption band.

The Commission is correct in being concerned and sensitive to the human health issues that will be voiced by the public when wide spread use of vehicle radar systems is commonplace. VORAD has already had to address specific health issues and concerns from drivers using production vehicle radar systems even though the radar transmitted power was less than 2.5 volts/meter at 3 meters (less than 2 microwatts/cm^2). VORAD has discovered that satisfying ANSI/IEEE C95.1-1982 and ANSI/IEEE C95.1-1992 is not always sufficient to allay public health concerns especially with regard to long term accumulated effects.

Recommendation: VORAD supports the FCC proposed power limitation of 30 microwatts/cm^2 measured at 3 meters from the antenna for vehicle radar applications.

4. Several commentors, including VORAD, indicated that the beam pattern sidelobe levels and spurious suppression requirements are too severe to achieve with current low cost technology. There should be no need to specify the sidelobe levels for vehicles. The vehicle radar system performance requirement will drive the sidelobe levels. Sidelobe levels tend to lose significance altogether when near obstacle detection radar systems are considered which may have a main beamwidth of 90 degrees or more.

Recommendation: VORAD recommends that the proposed rule making delete all requirements for sidelobe levels for vehicle radar systems. VORAD further recommends that the 72 dB suppression requirement for spurious emissions be relaxed to no more severe than the current Part 15 requirements which are down 40 dB or more for harmonics and down 50 dB or more for spurious emissions.

March 30, 1995
Date

Jerry D. Woll
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VORAD Safety Systems, Inc.